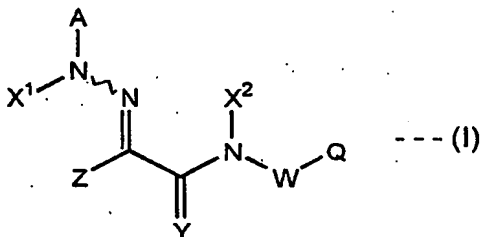


## CLAIMS

1. A insecticide characterized by containing as active ingredient a hydrazone derivative of formula (I)



wherein A and Q independently of the other are an unsubstituted or substituted aryl, or an unsubstituted or substituted heterocyclic group,

W is oxygen atom, an unsubstituted or substituted aminylene group, an unsubstituted or substituted alkylene group, an unsubstituted or substituted oxyalkylene group, or an unsubstituted or substituted alkyleneoxy,

X<sup>1</sup> and X<sup>2</sup> independently of the other are hydrogen atom, an unsubstituted or substituted alkyl, an unsubstituted or substituted alkenyl, an unsubstituted or substituted alkynyl, an unsubstituted or substituted aryl, an unsubstituted or substituted heterocyclic group, formyl, an unsubstituted or substituted acyl, an unsubstituted or substituted alkoxy carbonyl, an unsubstituted or substituted aryloxy carbonyl, an unsubstituted or substituted heterocyclic oxy carbonyl, an unsubstituted or substituted alkylsulfinyl, an unsubstituted or substituted arylsulfinyl, an unsubstituted or substituted heterocyclic sulfinyl, an unsubstituted or substituted alkylsulfonyl, an unsubstituted or substituted arylsulfonyl, or an unsubstituted or substituted heterocyclic sulfonyl,

Y is oxygen atom or sulfur atom,

Z is hydrogen atom, a halogen atom, cyano, an unsubstituted or substituted alkyl, an unsubstituted or substituted alkenyl, an unsubstituted or substituted alkynyl, an unsubstituted or substituted amino, an unsubstituted or substituted alkoxy, or an unsubstituted or substituted alkylthio.

2. The insecticide according to claim 1, wherein A and Q independently of the other are an aryl or a heterocyclic group which is unsubstituted or substituted by a substituent selected from G<sup>1</sup> wherein G<sup>1</sup> is a halogen atom, hydroxy, cyano, an alkyl, a haloalkyl, an alkenyl, a haloalkenyl, an alkynyl, a haloalkynyl, amino,

an alkylamino, a dialkylamino, an alkoxy, a haloalkoxy, formyl, an acyl, an acyloxy, an alkoxycarbonyl, an alkylthio, a haloalkylthio, an alkylsulfinyl, a haloalkylsulfinyl, an alkylsulfonyl, a haloalkylsulfonyl, an aryl, an aryloxy, an arylthio, a heterocyclic group, a heterocyclic oxy or a heterocyclic thio (the aryl, aryloxy, arylthio, heterocyclic group, heterocyclic oxy and heterocyclic thio may be further substituted by a substituent selected from the group consisting of a halogen atom, hydroxy, cyano, nitro, an alkyl, a haloalkyl, an alkenyl, a haloalkenyl, an alkynyl, a haloalkynyl, amino, an alkylamino, a dialkylamino, an alkoxy, a haloalkoxy, formyl, an acyl, an acyloxy, an alkoxycarbonyl, an alkylthio, a haloalkylthio, an alkylsulfinyl, a haloalkylsulfinyl, an alkylsulfonyl and a haloalkylsulfonyl), in case where plurality of G<sup>1</sup>s are present, adjacent two G<sup>1</sup>s may form a fused ring together with Q or A,

W is oxygen atom,  $-(C(R^1)(R^2))_n-$ ,  $-O(C(R^1)(R^2))_n-$ , or  $-(C(R^1)(R^2))_nO-$  wherein n is an integer of 1 to 5, and R<sup>1</sup> and R<sup>2</sup> independently of the other are hydrogen atom, an alkyl, an alkenyl or alkynyl, or R<sup>1</sup> and R<sup>2</sup> together form an alkylidene group, or  $-N(R^3)-$  wherein R<sup>3</sup> is hydrogen atom, an alkyl, an alkenyl or an alkynyl,

X<sup>1</sup> and X<sup>2</sup> independently of the other are hydrogen atom, formyl, or an alkyl, an alkenyl, an alkynyl, an aryl, a heterocyclic group, an acyl, an alkoxycarbonyl, an aryloxy, an aryloxy, an aryloxy, a heterocyclic oxycarbonyl, an alkylsulfinyl, an arylsulfinyl, a heterocyclic sulfinyl, an alkylsulfonyl, an arylsulfonyl or a heterocyclic sulfonyl which is unsubstituted or substituted by a substituent selected from G<sup>2</sup> wherein G<sup>2</sup> is a halogen atom, hydroxy, cyano, an alkyl, a haloalkyl, an alkenyl, a haloalkenyl, an alkynyl, a haloalkynyl, an alkoxy, a haloalkoxy, an alkoxyalkoxy, formyl, an acyl, an acyloxy, an alkoxycarbonyl, an alkylthio, a haloalkylthio, an alkylsulfinyl, a haloalkylsulfinyl, an alkylsulfonyl, a haloalkylsulfonyl, an aryl, an aryloxy, an arylthio, a heterocyclic group, a heterocyclic oxy or a heterocyclic thio (the aryl, aryloxy, arylthio, heterocyclic group, heterocyclic oxy and heterocyclic thio may be further substituted by a substituent selected from the group consisting of a halogen atom, hydroxy, cyano, an alkyl, a haloalkyl, an alkenyl, a haloalkenyl, an alkynyl, a haloalkynyl, an alkoxy, a haloalkoxy, formyl, an acyl, an acyloxy, an alkoxycarbonyl, an alkylthio, a haloalkylthio, an alkylsulfinyl, a haloalkylsulfinyl, an alkylsulfonyl and a haloalkylsulfonyl),

Z is hydrogen atom, a halogen atom, cyano, or an alkyl, an alkenyl, an alkynyl, an alkoxy or an alkylthio which is unsubstituted or substituted by a substituent selected from G<sup>3</sup> (wherein G<sup>3</sup> is a halogen atom, hydroxy, cyano, a haloalkyl, an

alkenyl, a haloalkenyl, an alkynyl, a haloalkynyl, an alkoxy, a haloalkoxy, an alkylthio or a haloalkylthio), or an amino which is unsubstituted or substituted by a substituent selected from  $G^4$  (wherein  $G^4$  is hydroxy, cyano, an alkyl, a haloalkyl, an alkenyl, a haloalkenyl, an alkynyl, a haloalkynyl, an alkoxy or a haloalkoxy, in case where the amino is substituted by two substituents selected from  $G^4$ , the  $G^4$ 's are same or different each other, and the  $G^4$ 's optionally forms a ring).

3. The insecticide according to claim 1 or 2, wherein Q is an aryl or a heterocyclic group which is unsubstituted or substituted by a substituent selected from the group consisting of a halogen atom, an alkyl, a haloalkyl, an alkylamino, a dialkylamino, an alkoxy, a haloalkoxy, an alkylthio and a haloalkylthio.

4. The insecticide according to any one of claims 1 to 3, wherein W is oxygen atom,  $-(C(R^1)(R^2))-$  (wherein  $R^1$  and  $R^2$  independently of the other are hydrogen atom, an alkyl, an alkenyl or alkynyl, or  $R^1$  and  $R^2$  together form an alkylidene group), or  $-N(R^3)-$  (wherein  $R^3$  is hydrogen atom, an alkyl, an alkenyl or an alkynyl).

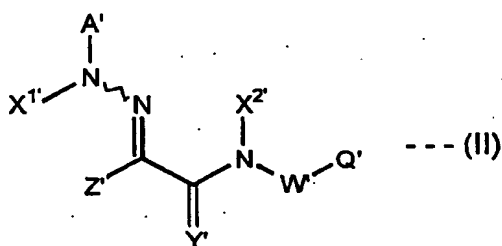
5. The insecticide according to any one of claims 1 to 4, wherein  $X^2$  is hydrogen atom, an alkyl or an alkoxy carbonyl.

6. The insecticide according to any one of claims 1 to 5, wherein  $X^1$  is hydrogen atom, an alkenyl having 1 to 4 carbon atoms, an acyl having 1 to 10 carbon atoms, or an alkyl having 1 to 10 carbon atoms which is unsubstituted or substituted by a substituent selected from the group consisting of a halogen atom, cyano, an alkoxy, an alkylthio, an alkoxy carbonyl and an unsubstituted or substituted aryl.

7. The insecticide according to any one of claims 1 to 6, wherein Z is hydrogen atom, cyano, an amino unsubstituted or substituted by one or two alkyl groups having 1 to 4 carbon atoms, or an alkyl unsubstituted or substituted by a substituent selected from the group consisting of a halogen atom, an alkoxy and an alkylthio.

8. The insecticide according to any one of claims 1 to 7, wherein A is phenyl or a nitrogen-containing heterocyclic group unsubstituted or substituted by a substituent selected from the group consisting of a halogen atom, cyano, nitro, an alkyl, a haloalkyl, an alkoxy, a haloalkoxy, an alkylthio and a haloalkylthio.

9. A hydrazone derivative of formula (II)



wherein A' and Q' independently of the other are an aryl or a heterocyclic group which is unsubstituted or substituted by a substituent selected from G<sup>5</sup> wherein G<sup>5</sup> is a halogen atom, hydroxy, cyano, an alkyl, a haloalkyl, an alkenyl, a haloalkenyl, an alkynyl, a haloalkynyl, amino, an alkylamino, a dialkylamino, an alkoxy, a haloalkoxy, formyl, an acyl, an acyloxy, an alkoxycarbonyl, an alkylthio, a haloalkylthio, an alkylsulfinyl, a haloalkylsulfinyl, an alkylsulfonyl, a haloalkylsulfonyl, an aryl, an aryloxy, an arylthio, a heterocyclic group, a heterocyclic oxy or a heterocyclic thio (the aryl, aryloxy, arylthio, heterocyclic group, heterocyclic oxy and heterocyclic thio may be further substituted by a substituent selected from the group consisting of a halogen atom, hydroxy, cyano, nitro, an alkyl, a haloalkyl, an alkenyl, a haloalkenyl, an alkynyl, a haloalkynyl, amino, an alkylamino, a dialkylamino, an alkoxy, a haloalkoxy, formyl, an acyl, an acyloxy, an alkoxycarbonyl, an alkylthio, a haloalkylthio, an alkylsulfinyl, a haloalkylsulfinyl, an alkylsulfonyl and a haloalkylsulfonyl), W' is oxygen atom, -(C(R<sup>1</sup>)(R<sup>2</sup>))<sub>n</sub>-, -O(C(R<sup>1</sup>)(R<sup>2</sup>))<sub>n</sub>-, or - (C(R<sup>1</sup>)(R<sup>2</sup>))<sub>n</sub>O- wherein n is an integer of 1 to 5, and R<sup>1</sup> and R<sup>2</sup> independently of the other are hydrogen atom, an alkyl, an alkenyl or alkynyl, or R<sup>1</sup> and R<sup>2</sup> together form an alkylidene group, or -N(R<sup>3</sup>)- wherein R<sup>3</sup> is hydrogen atom, an alkyl, an alkenyl or an alkynyl, X<sup>1</sup> and X<sup>2</sup> independently of the other are hydrogen atom, formyl, or an alkyl, an alkenyl, an alkynyl, an aryl, a heterocyclic group, an acyl, an alkoxycarbonyl, an

aryloxycarbonyl, a heterocyclic oxycarbonyl, an alkylsulfinyl, an arylsulfinyl, a heterocyclic sulfinyl, an alkylsulfonyl, an arylsulfonyl or a heterocyclic sulfonyl which is unsubstituted or substituted by a substituent selected from G<sup>2</sup> wherein G<sup>2</sup> is a halogen atom, hydroxy, cyano, an alkyl, a haloalkyl, an alkenyl, a haloalkenyl, an alkynyl, a haloalkynyl, an alkoxy, a haloalkoxy, an alkoxyalkoxy, formyl, an acyl, an acyloxy, an alkoxycarbonyl, an alkylthio, a haloalkylthio, an alkylsulfinyl, a haloalkylsulfinyl, an alkylsulfonyl, a haloalkylsulfonyl, an aryl, an aryloxy, an arylthio, a heterocyclic group, a heterocyclic oxy or a heterocyclic thio (the aryl, aryloxy, arylthio, heterocyclic group, heterocyclic oxy and heterocyclic thio may be further substituted by a substituent selected from the group consisting of a halogen atom, hydroxy, cyano, an alkyl, a haloalkyl, an alkenyl, a haloalkenyl, an alkynyl, a haloalkynyl, an alkoxy, a haloalkoxy, formyl, an acyl, an acyloxy, an alkoxycarbonyl, an alkylthio, a haloalkylthio, an alkylsulfinyl, a haloalkylsulfinyl, an alkylsulfonyl and a haloalkylsulfonyl),

Y' is oxygen atom or sulfur atom,

Z' is a linear or branched alkyl, a linear or branched alkenyl, or a linear or branched alkynyl which is unsubstituted or substituted by a substituent selected from G<sup>6</sup> wherein G<sup>6</sup> is a halogen atom, an alkoxy, a haloalkoxy, an alkylthio or a haloalkylthio.

10. The hydrazone derivative according to claim 9, wherein A' is is phenyl or a nitrogen-containing heterocyclic group unsubstituted or substituted by a substituent selected from the group consisting of a halogen atom, an alkyl, a haloalkyl, an alkoxy, a haloalkoxy, an alkylthio and a haloalkylthio.

11. The hydrazone derivative according to claim 10, wherein A' is is phenyl unsubstituted or substituted by a substituent selected from the group consisting of a halogen atom, an alkyl, a haloalkyl and a haloalkoxy.

12. The hydrazone derivative according to any one of claims 9 to 11, wherein Q' is an aryl or a heterocyclic group unsubstituted or substituted by a substituent selected from the group consisting of a halogen atom, an alkyl, a haloalkyl, an alkylamino, a dialkylamino, an alkoxy, a haloalkoxy, an alkylthio and a haloalkylthio.

13. The hydrazone derivative according to claim 12, wherein Q' is a heterocyclic group unsubstituted or substituted by a substituent selected from the group consisting of a halogen atom, an alkyl and a haloalkyl.
14. The hydrazone derivative according to any one of claims 9 to 13, wherein X<sup>2</sup> is hydrogen atom, an alkyl or an alkoxycarbonyl.
15. The hydrazone derivative according to any one of claims 9 to 14, wherein X<sup>1</sup> is hydrogen atom, an alkenyl having 1 to 4 carbon atoms, an acyl having 1 to 10 carbon atoms, or an alkyl having 1 to 10 carbon atoms which is unsubstituted or substituted by a substituent selected from the group consisting of a halogen atom, cyano, an alkoxy, an alkylthio, an alkoxycarbonyl and an unsubstituted or substituted aryl.
16. The hydrazone derivative according to any one of claims 9 to 15, wherein W' is oxygen atom, -C(R<sup>1</sup>)(R<sup>2</sup>)- (wherein R<sup>1</sup> and R<sup>2</sup> independently of the other are hydrogen atom, an alkyl, an alkenyl or alkynyl, or R<sup>1</sup> and R<sup>2</sup> together form an alkylidene group), or -N(R<sup>3</sup>)- (wherein R<sup>3</sup> is hydrogen atom, an alkyl, an alkenyl or an alkynyl).
17. The hydrazone derivative according to any one of claims 9 to 16, wherein Z' is a linear or branched alkyl unsubstituted or substituted by a substituent selected from the group consisting of a halogen atom, an alkoxy and an alkylthio.